Answer on Question#37631 - <Math> - <Discrette Mathematics>
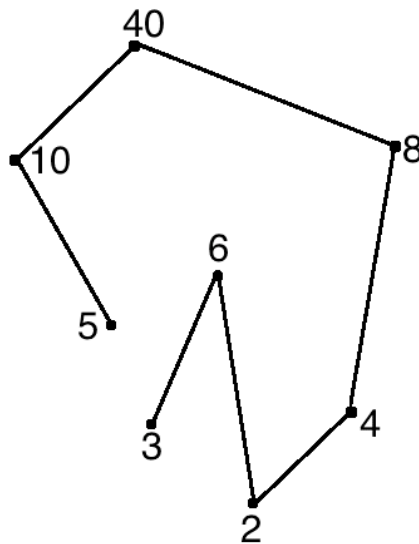
Let R be the partial order relation defined on A = {2, 3, 4, 5, 6, 8, 10, 40}, where xRy
means x | y.
i.Draw the Hasse diagram for R.
ii.Find the upper and lower bounds of {4, 8}.

Solution:

I

2 divides 4, 6, 8, 10 and 40.
3 divides 6.
4 divides 8 and 40.
5 divides 10 and 40.
6 doesn't divide anything.
10 divides 40;
40 doesn't divide anything.
Hasse diagram for R:

II

The upper bounds of {4, 8} are all the real numbers ≥ 8, i.e. in the interval
$[8, \text{infinity})$
Similarly the lower bounds of {4, 8} are all the numbers ≤ 4, i.e. in the internal
$(-\text{infinity}, 2]$
Hence, the least upper bound is 8 and the greatest lower bound is 4.